

TWO NEW SPECIES OF *SARCOPHAGA* MEIGEN FROM MADEIRA AND MAINLAND PORTUGAL (DIPTERA: SARCOPHAGIDAE)

Pape, T., 1990. Two new species of *Sarcophaga* Meigen from Madeira and mainland Portugal (Diptera: Sarcophagidae). — Tijdschrift voor Entomologie 133: 39-42, figs. 1-9. [ISSN 0040-7496]. Published 31 July 1990.

Sarcophaga (*Discachaeta*) *amputata* sp.n. (Madeira) and *Sarcophaga* (*Pierretia*) *ilicida* sp.n. (Portugal) are described and their phylogenetic affinities are discussed. *S. ilicida* was bred from the millipede *Ommatoiulus moreleti* (Lucas, 1860).

Dr. T. Pape, present address: Danish Bilharziasis Laboratory, Jaegersborg Allé 1D, DK-2920 Charlottenlund, Denmark.

Key words. — Diptera; Sarcophagidae; New species; Madeira; Portugal.

INTRODUCTION

A number of specimens representing two undescribed species of *Sarcophaga* Meigen were recovered from various sources. As the accompanying biogeographical and biological information is rather interesting, it is felt that the following descriptions are justified, although they do not form part of a more thorough revision.

Depositories for specimens examined are indicated by the following acronyms:

BMNH — British Museum (Natural History), London, England; NMWC — National Museum of Wales, Cardiff, England; ZMUC — Zoologisk Museum, University of Copenhagen, Denmark.

SYSTEMATIC PART

Sarcophaga (*Discachaeta*) *amputata* sp.n. (figs. 1-4)

Type material. — Holotype ♂, Madeira (Portugal): Between Canical & Prainha, 5.viii.1981, M. Jones (NMWC). The holotype is in good condition, glued to the pin along the right side of thorax and with the terminalia dissected and glued to a piece of cardboard pinned with the specimen.

Paratypes. Madeira: 1♂ 1♀, [no further locality, but with the number 1948-301], T.W. Wollaston (BMNH, NMWC); 2♀, data as holotype (NMWC, ZMUC); North end of Deserta Grande, 1♂ 1♀, 18.viii.1981, M. Jones (ZMUC, NMWC).

Description

Male. — Head. Narrowest part of frons 0.25-0.30 × head width. Parafacial plate with a uniserial row of setae along the eyemargin, the lower setae of this row being long and bristly. Postgena with white setae in about posterior 0.50-0.75

(strict lateral view).

Thorax. Proanepisternum setose in about upper half. Chaetotaxy: 3 indistinct pairs of presutural acrostichals, postsutural acrostichals absent or represented by the prescutellar pair only, dorsocentrals = 3 + 3, intra-alars = 1 + 2, supra-alars = 1 + 3, post alars = 2. Scutellum with a pair of apicals, 3-4 pairs of marginals and without discals. Mid femur with 2-3 anteroventral bristles, no posteroventral bristles. Hind tibia with a sparse row of elongated posteroventral setae.

Abdomen. Tergites 3-4 with silvery grey microtomentum mainly restricted to anterior half and almost non-changing; interrupted by a median black stripe. Tergite 5 with microtomentum reduced to narrow strips in antero-lateral position. Terminalia black or blackish brown. Protandrial segment with a row of marginal bristles. Cercus in profile with a distinct subapical dorsal hump. Aedeagus with very long harpes that terminates in a distinct hook, and a long, terminally bifid juxta. Gonopod with the usual row of long setae along dorsal margin but with some additional setae on the median surface.

Length: 8-9 mm (estimated from dissected specimens).

Female. — Very like the male apart from the usual sexual dimorphism. Abdominal pattern slightly more changing and with the median black stripe almost absent. Mid femoral organ not differentiated. Terminalia red. Tergite 6 broadly arched, the dorsal part reduced to a narrow strip, and marginal bristles only present laterally.

Length: 7.0-7.5 mm.

Distribution. — Palaearctic: Madeira islands (Madeira, Deserta Grande).

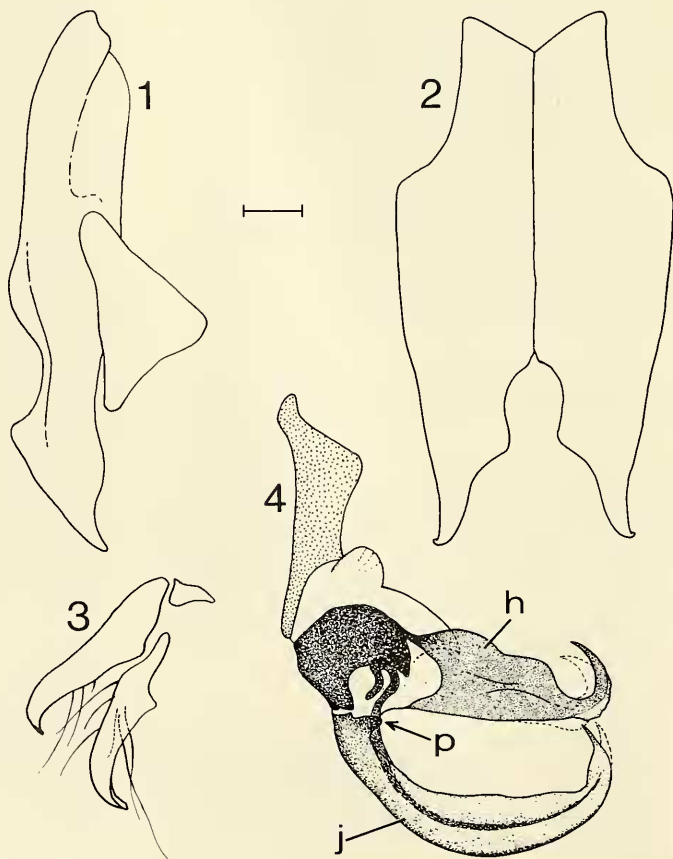
Etymology. — A Latin adjective, *amputatus* = cut off, amputated. The name refers to the structure of the aedeagus where the pair of very short arms at juxtal base will separate the species from all other species of the subgenus *Discachaeta*.

Remarks. — The sarcophagid fauna of Madeira was reviewed by Pape (1986), who listed a total of five species, three of which were judged to be recent introductions by man. The present species is interesting as it is the third apparently endemic species, and much evidence is in favour of considering this the sister species of the Madeiran *Sarcophaga* (*Discachaeta*) *kunonis* (Pape, 1986). The latter species was described in the genus *Discachaeta* Enderlein, which here is given subgeneric rank following the wide concept of *Sarcophaga* employed by Séguy (1941), Downes (1965) and Pape (1988). *Discachaeta* is probably a monophyletic group, this hypothesis being corroborated by at least the following character states that all seem to be derived with

regard to the groundplan of the Sarcophaginae and probably with regard to that of *Sarcophaga* sensu lato as well: 1) Male hind coxa with a ventro-medial pad of short spiny bristles; 2) Aedeagal juxta more or less dome-shaped and arching over the lateral styli; 3) Base of juxta with a pair of arms or processes; 4) Male cercus dorsally with a flattened or concave area and with a more or less distinct hump subapically; 5) Female mid femoral organ, if present, in apical position.

Defined in this way, *Discachaeta* contains six species, all distributed in the western Palaearctic. (Note that the species *Discachaeta* *gigas* Povolný, 1986 was transferred to *Heteronychia* Brauer & Bergenstamm (*Eupierretia* Rohdendorf) in an addendum of the original paper.)

The hypothesis that *Sarcophaga* *amputata* and *S. kunonis* are sister species is corroborated by the presence in these two species of at least five character states that are judged to be derived with regard to the ground plan of *Discachaeta* and not found in any other species of this taxon: 1) Postgena with at least some black setae in anterior part, 2) Proanepisternum setose, 3) Abdominal tergite 5 almost de-



Figs. 1–4. *Sarcophaga* *amputata*, male terminalia. 1, right cercus and surstylus, lateral view, setae omitted; 2, cerci, posterior view, setae omitted; 3, right paramere + gonopod, lateral view; 4, aedeagus, lateral view. Abbreviations: h = harpes, j = juxta, p = process at juxtal base. Scale = 0.1 mm.

void of microtomentum, 4) Male gonopod with long setae on the median surface (fig. 3), and 5) Female mid femoral organ reduced, i.e. indistinct or absent. *Sarcophaga amputata* is easily separated from *S. kunonis* in both sexes by the greater extension of white postgenal setae. These cover at least one half (strict lateral view) of the postgena in *S. amputata* while they are almost absent in *S. kunonis*. However, as the Madeiran fauna of Sarcophagidae may still be incompletely known, the shape of the aedeagus still provides the best clue to reliable identifications.

Sarcophaga amputata may be widespread on the main island and is the first species of Sarcophagidae recorded from the Desertas islands.

Sarcophaga (Pierretia) *iulicida* sp.n. (figs. 5–9)

Type material. — Holotype ♂, Portugal: Mourão, ex *Ommatoiulus moreleti*, larva 8.v.1987, pupa 14.v.1987, adult 30.v.1987, P.T. Bailey (BMNH). The holotype is in good condition, with the puparium glued to a piece of cardboard and the dissected terminalia stored in glycerine in a microvial, both items pinned with the specimen.

Description

Male. — Head. Narrowest part of frons 0.25 × head width. Parafacial plate with a row of setae along the eyemargin. The upper part of the row consists of uniserial setae, the lower part is irregularly biserial with 3–5 long bristles anterior to the

setae. Arista with longest hairs about 4 x as long as second aristomere. Gena with black setae only, postgena with white setae only.

Thorax. Proanepisternum bare. Chaetotaxy: 2–3 distinct pairs of presutural acrostichals, postsutural acrostichals (including prescutellars) not differentiated, dorsocentrals = 3 + 3, intra-alars = 1 + 2, supra-alars = 1 + 3, postalars = 2. Scutellum with 2 pairs of lateral scutellar bristles, 1 pair of short apicals, and 1 pair of discals. Mid femur with 3 anteroventral bristles and a row of posteroventrals. Apical posteroventrals slightly stronger than apical anteroventrals. Hind tibia without elongated setae.

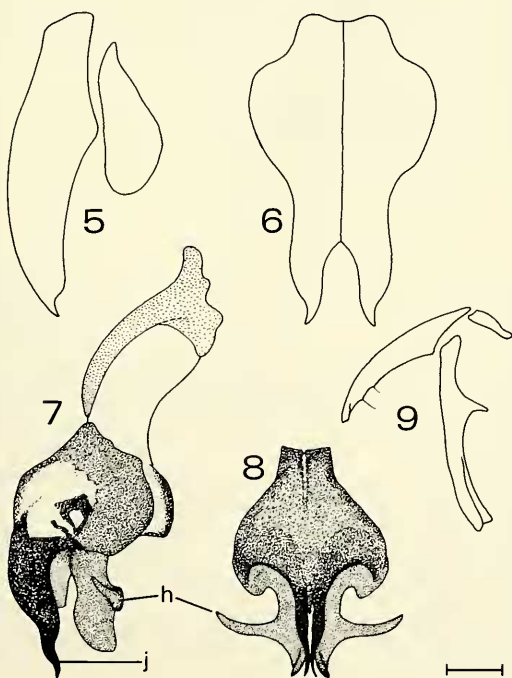
Abdomen. Tergites 3–4 with strong median marginals on T5 with a complete row of marginals. Terminalia black, protandrial segment without marginal bristles. Aedeagus with well developed harpes, each of which has a narrow winglike process that is directed laterally and opposite to its counterpart. Vesica reduced to a simple swelling or hump. Juxta moderately long and deeply cleft.

Length: 7 mm (estimated from dissected holotype).

Female. — Unknown.

Puparium of the usual barrel-shape and with the posterior spiracles in a deep pit as in most species of Sarcophaginae.

Distribution. — Palearctic: Portugal.



Figs. 5–9. *Sarcophaga iulicida*, male terminalia. 5, right cercus and surstylus, lateral view, setae omitted; 6, cerci, posterior view, setae omitted; 7, aedeagus, lateral view; 8, distiphallus, dorsal (= posterior) view; 9, right paramere + gonopod, lateral view. Abbreviations: h = harpes, j = juxta. Scale = 0.1 mm.

Etymology. — A noun in apposition. From the Latin *iulus* = multiped, millipede, and *-cida* = suffix denoting cutter, killer, killing. The name refers to the millipede-parasitizing habit of the species.

Remarks. — The present species belongs to a probably monophyletic group whose members all possess an aedeagus very similar to that of *Sarcophaga nigriventris* Meigen. The group is defined by the characteristic and probably apomorphic shape of the aedeagal juxta, which can be dissolved into the two character states: 1) Juxta deeply cleft, and 2) Juxtal prongs tapering. Both states are readily seen on figs. 7–8. No formal genus-group name has been applied explicitly to this taxon, but the concept of *Pierretia* Robineau-Desvoidy (sensu stricto) of Verves (1986) is very close, the only difference being that this author includes *Sarcophaga granulata* Kramer, which does not possess either of the derived character states. I prefer to restrict the name *Pierretia*, as a subgenus of *Sarcophaga*, to the group of species possessing the two above mentioned character states, i.e. *Sarcophaga discifera*/Pandellé, *S. ilicida*, *S. lunigera* Böttcher, *S. nigriventris*, *S. socrus* Rondani, *S. soror* Rondani, *S. sororcula* (Rohdendorf) and *S. villeneuvei* Böttcher. *Sarcophaga ilicida* may easily be separated from other members of the subgenus by the wing-like projection of each of the harpes which is directed laterally and set at right angles to the longitudinal axis of the aedeagus. This is most easily seen in dorsal (= posterior) view (fig. 8).

The biology of *Sarcophaga ilicida* is interesting as very few Diptera are known to parasitise millipedes, and among the Sarcophagidae only species of the New World genus *Spirobolomyia* Townsend have been repeatedly bred from live millipedes. The habits of other species of the subgenus *Pierretia* (as defined above) indicate a broad to very broad spec-

trum of hosts or prey. Thus, the species *Sarcophaga nigriventris* has been bred from snails, beetles, grasshoppers and bees (see references in Pape 1987).

ACKNOWLEDGEMENTS

I extend my sincere thanks to Mr J.C. Deeming, Cardiff, and Mr A.C. Pont and Mr N.P. Wyatt, both London, for loan of specimens in their care.

REFERENCES

- Downes, W. L., Jr., 1965. Family Sarcophagidae. Pp. 933–961. In: A. Stone et alii (eds): A catalog of the Diptera of America north of Mexico. – Agriculture Handbook No. 276, Washington, D.C.
- Pape, T., 1986. The Sarcophagidae (Diptera) of Madeira, with the description of a new species of *Discachaeta* Enderlein. – *Bocagiana* 93: 1–4.
- Pape, T., 1987. The Sarcophagidae (Diptera) of Fennoscandia and Denmark. – *Fauna entomologica scandinavica* 19: 1–203, 2 pls.
- Pape, T., 1988. A revision of the Palaearctic Sarcophagidae (Diptera) described by C. Rondani. – *Stuttgarter Beiträge zur Naturkunde (Serie A)* 416: 1–22.
- Povolný, D., 1986. *Discachaeta gigas* sp.n. und *Heteronychia (Heteronychia) vachai* sp.n. – zwei unbekannte Sarcophaginae-Arten aus dem Dinarischen Küstengebiet (Diptera, Sarcophagidae). – *Acta Universitatis Agriculturae* 34(2): 229–238.
- Séguy, E. 1941. Études sur les mouches parasites. 2. Calliphoridae, calliphorines (suite), sarcophagines et rhinophorines de l'Europe occidentale et méridionale. – *Encyclopédie entomologique (A)* 21: 1–436.
- Verves, Yu. G. 1986. Family Sarcophagidae. Pp. 58–193. In: A. Soós (ed.): Catalogue of Palaearctic Diptera. Vol. 12, Calliphoridae – Sarcophagidae. – Akadémiai Kiadó, Budapest.

Received: 29 May 1989

Accepted: 17 July 1989